RESTATEMENTS AND AMENDMENTS

In the Claims:

The following is a list of claims currently pending in this application and their current status. This listing of claims replaces all prior versions and listings in this application.

1.   (Cancelled)

2.   (Currently amended) ~~The method according to claim 1,~~
A method for determining coordinates of an arbitrarily shaped pattern on a surface in a deflector system, including:

     a)   selecting a reference clock signal that defines a movement in a first direction (X),

     b)   providing a micro sweep that repeatedly scans the surface in a second direction (Y), perpendicular to the first direction (X)

     c)   selecting a measurement clock signal that is related to the signal used to start each micro sweep in the second direction (Y),

     d)   adjusting the speed of the movement in the first direction (X) to determine the distance between the start of each micro sweep,

     e)   performing a first run that include the steps of:

          e1)   starting a first micro sweep at a starting position,

          e2)   detecting at least one edge of the arbitrarily shaped pattern when the pattern is moved in the first direction (X) relative the deflector system,

          e3)   generating at least one event if the edge of the pattern is detected, and

          e4)   counting using a counter the number of micro sweeps performed until each event is generated, and

     f)   calculating a coordinate of the edge, for each event, in the first direction (X) using the number of performed micro sweeps

wherein more than one run as defined in step e) is performed, for each run the starting position in step e1) is pseudo randomly selected, thereby generating pseudo randomly

distributed micro sweeps between each run.

3.   (Previously presented) The method according to claim 2, wherein an average value of the edge is calculated in step f), thereby increasing accuracy of the coordinate in the first direction.

4.   (Currently amended) The method according to claim 2 [[4]], wherein said the selected reference clock signal in step a) corresponds to a known position of the system in the first direction (X).

5.   (Previously presented) The method according to claim 4, wherein said selected reference signal in step a) is divided into intervals, where each interval corresponds to a lambda/2 period of the reference clock signal, and the selected measurement clock signal in step c) has a period that corresponds to 8-10 scans of the pattern in each interval.

6.   (Currently amended) The method according to claim 2 [[4]], wherein the method further includes a compensation for an azimuth error introduced when the micro sweep scans the surface in the second direction (Y) during movement of the surface in the first direction (X).

7.   (Original) The method according to claim 6, wherein said compensation is a constant compensation.

8.   (Currently amended) The method according to claim 2 [[4]], further including determining a coordinate in the second direction (Y) using as a reference signal, the signal used to start each micro sweep in the second direction, and as a measurement signal, a pixel clock signal.

9.   (Currently amended) ~~The method according to claim 1,~~

A method for determining coordinates of an arbitrarily shaped pattern on a surface in a deflector system, including:

      a)   selecting a reference clock signal that defines a movement in a first direction (X),

      b)   providing a micro sweep that repeatedly scans the surface in a second direction (Y), perpendicular to the first direction (X)

      c)   selecting a measurement clock signal that is related to the signal used to start each micro sweep in the second direction (Y),

      d)   adjusting the speed of the movement in the first direction (X) to determine

the distance between the start of each micro sweep,

    e)   performing a first run that include the steps of:

        e1)   starting a first micro sweep at a starting position,

        e2)   detecting at least one edge of the arbitrarily shaped pattern when the pattern is moved in the first direction (X) relative the deflector system,

        e3)   generating at least one event if the edge of the pattern is detected, and

        e4)   counting using a counter the number of micro sweeps performed until each event is generated, and

        f)   calculating a coordinate of the edge, for each event, in the first direction (X) using the number of performed micro sweeps;

wherein said method is adapted to be used in a laser lithography system or an e-beam lithography system.

10.   (Cancelled)

11.   (Currently amended) The method according to claim <u>12</u> [[10]], wherein the speed of movement of the pattern is correlated with the number of micro sweeps performed.

12.   (Currently amended) ~~The method according to claim 10,~~

<u>A method for determining coordinates of an arbitrarily shaped pattern in a deflector system, including:</u>

    <u>moving the pattern in a first direction (X), calculating the position of the edge of the pattern by counting with a counter the number of micro sweeps, performed in a perpendicular direction (Y), until the edge is detected, and determining the coordinates by relating the number of counted micro sweeps to the speed of the movement of the pattern;</u>

wherein the pattern is scanned several times and an off-set in the first direction (X) for the first micro sweep is <u>pseudo</u> randomly selected for each run.

13.   (Original) The method according to claim 12, wherein the position of the edge is obtained from an average value from all runs.

14.   (Currently amended) Software fixed in a <u>non-transitory</u> computer-readable <u>storage</u> medium, adapted to be used in a deflector system for determining the

coordinates of an arbitrarily shaped pattern in a deflector system, the software further adapted to carry out the method of claim 2 [[4]].

15.   (Previously presented) The method according to claim 5, further including determining a coordinate in the second direction (Y) using as a reference signal, the signal used to start each micro sweep in the second direction, and as a measurement signal, a pixel clock signal.

16.   (Currently amended) The method according to claim 12 [[44]], wherein the pattern is scanned several times and an off-set in the first direction (X) for the first micro sweep is pseudo randomly selected for each run.

17.   (Currently amended) Software fixed in a non-transitory computer-readable storage medium, adapted to be used in a deflector system for determining the coordinates of an arbitrarily shaped pattern in a deflector system, the software further adapted to carry out the method of claim 12 [[40]].